
RESEARCH ASSIGNMENT FOR THE MASTER OF MEDICINE IN FAMILY
MEDICINE DEGREE

EVALUATION OF THE “TAKE FIVE SCHOOL”

AN EDUCATION PROGRAMME FOR PEOPLE WITH TYPE 2 DIABETES IN THE EDEN DISTRICT, WESTERN CAPE



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DECLARATION

I, the undersigned, hereby declare that the work contained in this assignment is my original work and that I have not previously submitted it, in its entirety or in part, at any university for a degree. I also declare that ethical approval for the study was obtained from the Health Research Ethics Committee of Stellenbosch University (Reference number: N10/07/225).

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ABSTRACT

INTRODUCTION

Education, motivation and support are seen as key components in the care for people with diabetes and the use of a structured education programme is part of the recommended standard care in many guidelines. Previous research shows that routinely delivered group care is a feasible and cost-effective approach to improve metabolic control and quality of life in type 2 diabetes. The “Take Five School” programme was introduced in the Eden District by a small group of health care workers and one of the local primary care managers and aimed to provide effective small group diabetes education over four sessions.

AIM

To evaluate the Take Five School group education programme for patients with Type 2 Diabetes in the Eden District of the Western Cape.

METHODS

Mixed methods were used: Qualitative methods involved individual in-depth interviews with health care workers and focus group interviews with patients. Quantitative methods measured the impact on self-management activities by a “before-and-after” study.

RESULTS

There was a significant improvement in adherence to a diabetic diet, physical activity, foot care and the perceived ability to teach others. There was no self-reported change in adherence to medication. Before the educational programme 25% (21/84) of the patients were smoking tobacco and this reduced to 18% afterwards (15/84) ($p=0.08$). Qualitative data revealed a number of strengths and weaknesses in the current programme as well as a number of external opportunities and threats to the future success of the programme.

CONCLUSION

This research has shown that structured group education of Type 2 diabetics in a South African public sector primary care context can lead to significant short term improvements in self-care activities. A number of specific recommendations are made to improve both the programme and its enabling environment. The Take Five School programme should be sustained, strengthened and evaluated further.

INTRODUCTION

In 2011 the prevalence of diabetes in South Africa was estimated to be 6.5% in the age group 20-79 years.¹ The number of people diagnosed with diabetes was estimated to be 2 million and this is expected to rise to 2.5 million by 2030.¹ An additional estimated 1.5 million people are undiagnosed.¹ Diabetes is currently the fourth most common diagnosis in primary care² and contributes significantly to the burden of disease in South Africa, both directly as well as indirectly through its complications.^{3, 4} An estimated \$695 (R6000) was spent per diabetic per year in 2011 in South Africa.¹ For example: a farm worker's minimum wage is around R1200 per month. This would mean that without public health care, or insurance, half of his salary would go to the payment of his treatment.

The care for this growing number of patients falls mostly on primary care and guidelines recommend medical management as well as patient education, with the aim to promote self-management and to mitigate the severity of the illness and other cardiovascular risk factors.^{5, 6}

Self management refers to the involvement of the patient in the management of their illness and requires patients to be empowered to take personal responsibility for certain aspects of their care. It is defined as the learned ability to perform an act competently⁷ or "what patients decide to do in order to manage their treatment and prevent complications"⁸. Patients need ongoing support and motivation⁹, as well as "a minimum threshold of diabetic knowledge" for successful self management and constructive life style adjustments.¹⁰

Education, motivation and support are therefore seen as key components in the care for people with diabetes and the use of a structured education programme is part of the recommended standard care in many guidelines.^{5, 6, 11, 12} The call to integrate a structured education programme into comprehensive diabetes care is not only evidence based⁷, but increasingly rights-based:^{13, 14}

The question therefore arises of how such education should be offered in South Africa. It has been noted that individual and group based diabetic education programmes are both effective in improving glycaemic control.^{7,10} However, the effect of group education might be slightly larger, more efficient and cost-effective.¹⁵ Short interventions, are less effective, however frequent.¹⁶ This seems to be a fitting description of the current "ad hoc"¹⁷ approach to education in primary care in South Africa.

Evidence with regards to effectiveness of group education, in both the short and longer term, is continuously being generated.^{7,18,19} Several reviews and meta-analyses have been carried out.^{7,10,16,20} These analyses have all come across several difficulties in interpreting the data. Firstly, health education in diabetes is a complex intervention⁷ and as such it is not always clear what factor caused or did not cause a change in outcomes. Secondly, the interventions, although all described as "group based structured education programmes" were very heterogeneous. There were differences in the moderators' communication styles and professional backgrounds. There were also differences in number of interactions, duration of sessions, frequency and length of follow up. There were no or different educational theories behind the programmes. Different topics or content were addressed. Participants could be newly diagnosed or longstanding diabetic patients.

The effects of education can be divided into three main groups: biomedical, psychosocial and lifestyle.²¹ These three main groups can each be subdivided into several smaller components. The biomedical group covers outcomes like HbA1C, weight/body mass index/waist circumference, lipid profile, blood pressure, complications and hypoglycaemia. The psychosocial outcomes are often measured with questionnaires assessing for example, self-efficacy, quality of life, patient satisfaction or depression. Lifestyle outcome measures could, for example, assess smoking, physical activity, or diet. Improving the patient's quality of life may be seen as the ultimate outcome and most of the other measurements are contributory to this in terms of beneficial lifestyle change, improvement in biomedical markers or health care. The interaction and cause-

effect relationship between these various measures is complex. There has been limited research on what teaching style should be used, although there seems to be a great emphasis on interactive adult learning either on an individual basis or in a group setting.¹¹ The very nature of these complex interventions as well as the lack of clear evidence for every outcome measure make a cost-effectiveness analysis difficult.^{22, 23}

Despite the problems with interpreting the existing research, reviews by both Deakin⁷ and Steinbekke²⁰ concluded cautiously that group based education could be effective and results in improvements in clinical, lifestyle and psychosocial outcomes. Rickheim et al¹⁵ concluded that group education is equal or better, depending on the outcome selected, to individual education and might be more cost effective. The NICE review committee accepted that the quality of research and evidence in favour of diabetes education was limited.¹¹ Despite this, they feel that diabetes education has a relatively low cost, and therefore only small improvements in outcomes are needed to make it a cost effective intervention.¹¹

The goals of educational programmes should be adapted to local needs, but are generally aimed at optimizing metabolic control, preventing complications and improving quality of life, while keeping costs acceptable.¹⁰ Trento¹⁸ adds another, attractive dimension, and states that “lifestyle intervention requires delivery of continuing patient education and care *without increasing clinical workload and with measurable outcomes*”. She concludes that “routinely delivered group care is a feasible and cost-effective approach to improve metabolic control and quality of life in type 2 diabetes”.¹⁸ This could be true also in the setting of low or middle income countries.²⁰

Because 80% of diabetics live in low or middle income countries¹ it is essential to develop a cost effective approach to structured educational programmes. In the South African public sector, no uniform education programme has yet been developed or implemented and individual ad hoc counselling is the norm in most clinics.¹⁷

A cluster pragmatic randomised controlled trial of group diabetes education has just been concluded in Cape Town²⁴. This trial investigated a structured educational programme with four sessions delivered by mid-level health promoters in a guiding style within community health centres. Although the qualitative evaluation suggested that health promoters and patients were positive about the programme and its benefits, the quantitative analysis has only demonstrated an effect on improved blood pressure control. Issues raised in the process evaluation were poor infrastructure with no space for groups to meet, difficulty communicating with patients about times and venues and only partial success with adoption of a guiding style by the health promoters (Mash B, Email communication, Cape Town; 2012, October 16).

The “Take Five School” programme was introduced in the Eden District by a small group of health care workers and one of the local primary care managers and aimed to provide effective small group diabetes education over four sessions. The school, however, has never been formally evaluated and it is not known whether this programme can serve as a model for other districts in managing Type 2 Diabetes or even other chronic diseases.

AIM AND OBJECTIVES

AIM:

To evaluate the Take Five School group education programme for patients with Type 2 Diabetes in the Eden District of the Western Cape.

OBJECTIVES:

- To measure the effect of the School with regards to self-management activities using the summary of diabetes self-care activities measure (SDSCA) questionnaire.²⁵

- To measure the effect of the School on the patient's perceived ability to educate others
- To explore patient's attitudes to and perceptions of the training programme using focus group interviews.
- To explore the views and experiences of health care workers facilitating or otherwise involved with the programme using in-depth interviews.
- To make recommendations on improvement of the programme

METHODS

STUDY DESIGN

This was a programme evaluation using mixed methods. Qualitative methods involved individual in-depth interviews with health care workers and focus group interviews with patients. Quantitative methods were used to measure the impact on self-management activities in the form of a "before-after" study.

SETTING

The study was conducted in six different primary health care clinics in the Eden district of the Western Cape, in and around George. The clinics enrolled were Thembaletu clinic, serving a mostly Xhosa speaking population of an estimated 30.000 people.²⁶ Conville and Pacaltsdorp served a mostly Afrikaans speaking urban Coloured population, however Conville has a lower socio-economic status with higher HIV/TB/interpersonal violence rates. Pacaltsdorp lies just outside of George and houses a relatively wealthy Afrikaans speaking coloured population. On the outskirts of George lies Blanco clinic serving a white/coloured, more rural population. Centrum clinic was in central George and one clinic was located in Mosselbay with a mostly coloured population, with a minority of Xhosa speakers (see Figure 1).

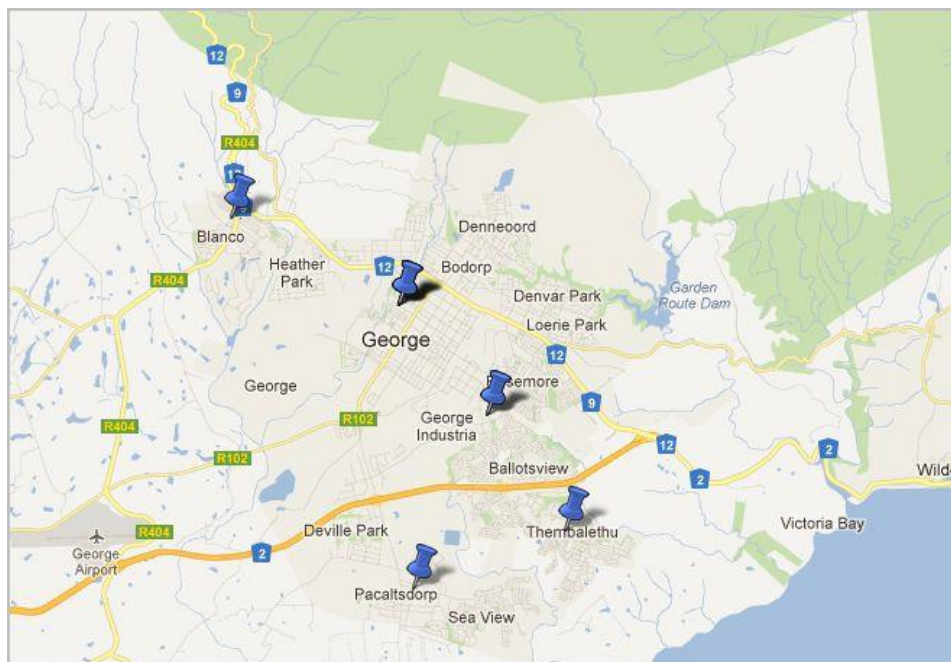


Figure 1: Map with selected clinics in George area

In most clinics, diabetics are seen on specific days. Every patient is given a colour and every week of the month has a colour so that the patients come in the week of their colour to refill their medications. Before they refill, measurements of blood pressure, random capillary blood glucose and weight are performed. Well controlled

patients are given a prescription for six months. Uncontrolled patients are given shorter prescriptions. Some well controlled patients are given their medication in community-based sites, which can be a shop or a post office. These patients have a yellow card with which they can check their blood sugars at their local clinics by using “fast lanes”.

Most clinics that have specific days for diabetic patients, will try to give a health talk, but most waiting rooms are overcrowded and include children, older people and acutely ill patients.

There is one dietician for the sub-district, who visits the clinics on the “diabetes” days, but is also responsible for the TB hospital and Uniondale area. The dietician often sees patients in small groups, as there is little time for individual sessions, and is responsible for the issuing of glucometers.

Some clinics have health promoters, but they are mostly involved in TB or infant care. There are no specialised diabetes nurses. There is one specialized eye sister and one ophthalmologist for the district. There is no NGO active in the field of diabetes and there are no active support groups. In the clinics there are no functioning chronic care teams and no designated people responsible for the education of the diabetics.

THE TAKE-5 PROGRAMME

The Take Five School is a group based structured education programme, set in the primary care clinics in George. It was developed by several doctors, the dietician and the primary health care manager around 2007. Its aims were to “educate the patients that they can not only better manage themselves, but also act as educators in their communities.” Thus there was an emphasis on leadership skills (du Toit A. George Sub-district Clinics Manual for Medical Officers. Chapter 18. Take Five School. Available from the author. 2008)

The topics addressed during these sessions were: knowledge about the illness, the complications and treatment, a healthy lifestyle and how to apply the new knowledge. The teaching-style was supported by general learning principles such as promoting interaction between participants and presenter as well as amongst participants, including giving and receiving feedback on thoughts and questions. The intention was to enhance peoples motivation to change through building their confidence and providing information. The classes were interactive, visual, and simple to understand and built on patient’s existing knowledge and experiences. There was an appreciative focus on achievements, opportunities, successes and solutions. There were a number of small songs/yells that were combined with set gestures/dances that helped to memorise key messages.

In this study patients were offered four sessions of an hour each, one week apart. The classes were offered by a dietician in four clinics, by a health promoter in one, and by a doctor in one. A letter for employers was offered explaining the research and the potential impact. The venues were different per clinic; a library (at three clinics), a community hall, once, when the usual location (library) was not available, a waiting room and a separate room in the clinic. The classes were given in English and Afrikaans, and a translator for Xhosa was used in one clinic (Thembaletu). Two cycles were done in Thembaletu, both with a translator. After the last class, participants received a certificate and a small celebration was organised.

At the time of the research the Take Five School was not actively running in any clinic and the researcher had to re-initiate the School, with great help from the dietician and the previous primary health care manager. Therefore at the beginning of the research, no practical organisation at clinic level was present. After discussions with the operational managers of the selected clinics, dates were set for the Take Five School. The researcher printed posters and small cards with the dates for handing out to patients and clinic registers. The researcher and the dietician organised venues. The staff at clinic level was briefed about the research by their operational managers.

The recruitment for the Take Five School was done by visiting the clinics on their diabetes days. Early in the morning, when the clinics were at their fullest, the researcher would talk to the people in the waiting room about the Take Five School, what it entailed, when and where and for whom it was intended. Interested patients were given a credit card size piece of paper with dates, times and venue for the planned Take Five Schools for that particular clinic. A registration list was left with the triage nurse together with several credit card size pieces of paper. The registration list gave an idea of how many patients to expect per clinic.

STUDY POPULATION

The eligible population for the Take Five School were all type 2 diabetics. The eligible population for the focus group discussions were all the patients who had participated in the School during the research study. The eligible population for the in-depth interviews were all the health care workers that had been involved in the School.

SAMPLING AND SELECTION

A sample size calculation for the before-after analysis was performed by the Centre for Statistical Consultation at Stellenbosch University. This concluded that 84 pairs of data would achieve 80% power to detect an odds ratio of 3.0 using a two-sided McNemar test with a significance level of 0.05. The odds ratio is equivalent to a difference between two paired proportions of 0.2. A sample size of 84 patients with both before and after data was therefore required.

Initially, six Schools, of four classes each, at six clinics were planned and executed. However this did not yield the necessary 84 before and after questionnaires. A further four cycles were planned at four of the previous six clinics, but one clinic failed to recruit any patients and the exact required amount of questionnaires was reached without this fourth clinic. Altogether therefore the programme was run nine times.

Patients were encouraged to join the focus group interview after the last class, and participation was voluntary. Patients who were unable to join were mostly apologetic and reasons were usually that they had to see the doctor or had to pick up medication. Focus group interviews were conducted at Centrum (1x), Thembaletu (2x), Conville (2x) and Pacaltsdorp (1x). The other clinics were not included because of logistic issues, space and researcher time limitations.

Selection for the in depth interviews was by using the snow ball method until no further new names/roles were mentioned. Ten health care workers were interviewed as listed below:

- Presenters: A doctor and the dietician who presented the sessions
- Managers: The manager of primary care services, George Sub district manager, two operational managers at two clinics and one nursing sub-district manager.
- Other health workers: A pharmacist, health promotion coordinator and health promoter based in a clinic.

DATA COLLECTION

QUESTIONNAIRES

The questionnaire used was the validated diabetes self-care activities measure (SDSCA) questionnaire²⁵ (see Appendix 1). The questionnaire consisted of questions relating to diet, physical activity, foot care, medication compliance, smoking, ability to teach others, as well as demographic questions such as age, sex, duration since diagnosis, self reported complications, co-morbidities, medication regimen and use of glucometers.

After obtaining consent, the questionnaire was administered before the start of the first session and after the end of the last. People who were unable to read or write were helped by the researcher. All forms were available in Afrikaans, English and Xhosa.

FOCUS GROUP INTERVIEWS

The preset interview guide focussed on: general experiences and opinions, was it useful, pro's and con's of group versus individual education, points of improvement, best aspects, should all diabetics do these sessions, perceived ability to educate and help others and the style of teaching. A total number of six focus groups were conducted by the researcher. The focus groups were held in the same location as the last class, except for in one clinic, where the School was presented in the waiting room. In this clinic a separate room was used in the clinic. For all others it was around a table in the library. Languages used were Afrikaans, English and Xhosa. A lay Xhosa translator was present in the clinic where there were mostly Xhosa speaking patients. Most discussions were in Afrikaans and in one clinic Afrikaans and English, but all participants were able to follow the discussions.

The discussions were recorded and the researcher also made field notes. Key attitudes in the interviews were open mindedness, respect, and lack of any judgment, curiosity and alignment with purpose. Key skills included the use of open ended questions, clarification, reflective listening, summarizing and facilitative responses.

IN DEPTH INTERVIEWS

Interviews with health care workers were conducted over a two month period (July-August 2010). The interviews were mostly done at the respondent's place of work. A quiet room was used and interruptions were minimal. The interview guide focussed on the general experience, the strengths and weaknesses, the support for the programme, alternatives for patient education, how it can be improved, what are the limitations and how it can be integrated into standard practise. "What else would you like to share" and "who else should I talk to", were the last questions. Similar skills and attitudes were applied as for the focus group interviews. Respondent validation and theoretical sampling were used.²⁷ Theoretical sampling "ensures that an initial sample is drawn to include as many as possible of the factors that might affect variability of behaviour, and then this is extended, as required, in the light of early findings and emergent theory."²⁷

DATA ANALYSIS

The data from the questionnaire were entered into an Excel sheet, where it was checked and cleaned. It was then analysed by the Centre for Statistical Consultation at Stellenbosch University. The ordinal data was not normally distributed and therefore it was analysed with a non-parametric version of the paired t-test called a Wilcoxon Matched Pairs Test. Binary before and after data (yes/no) was analysed using a McNemar test.

The recorded interviews were transcribed verbatim by a professional transcriber. The Afrikaans sections were translated by the transcriber into English. The researcher then listened to the recordings while reading the verbatim texts and corrected mistakes and omissions. The qualitative data was then analysed using the framework method²⁸ with the help of Atlas ti. The framework approach identifies five steps:

1. Familiarization: The researcher immerses herself in the data and identifies key themes.
2. Thematic index: The broad thematic framework was partly dependent on the a priori objectives of the research. Themes and subthemes that related to this framework were then inductively identified from the transcripts. Codes were assigned for each subtheme.
3. Coding. Codes were allocated throughout the whole text. A paragraph could have more than one coding reference.

5. Charting: The selected text with the same code were placed together in a chart in order to get all the information on a specific subtheme together.

6. Mapping and interpretation. The range and nature of different opinions and experiences were then analysed, as well as any particular associations between the data or explanations for particular viewpoints.

RESULTS

PROFILE OF STUDY POPULATION

Out of the 84 participants 68 (81%) were women and 16 (19%) were men, and the mean age was 51.6 years (SD 9.2). The age distribution of the study population is shown in Figure 2 and the time since diabetes was diagnosed in Figure 3. The mean time since diagnosis was 5.8 years (SD 5.6).

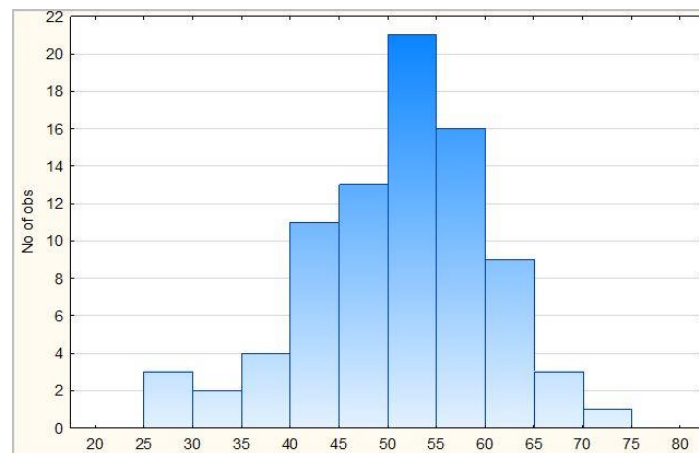


Figure 2: Age distribution of participants

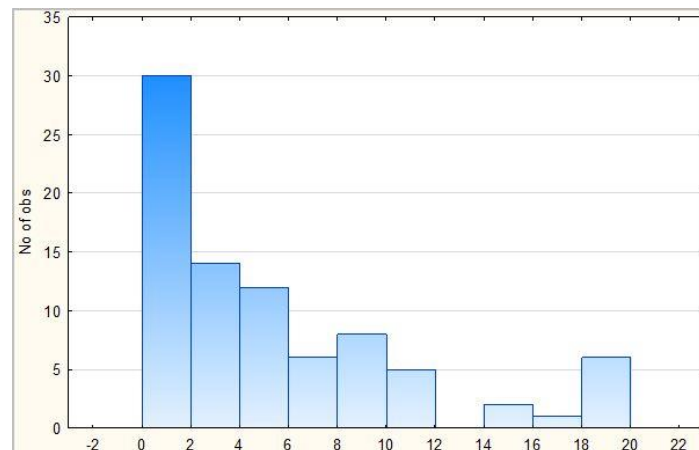


Figure 3: Years since diagnosis of diabetes of participants

Fifty-six participants (67%) were not employed, 7 (8%) were part time employed, 14 (17%) were fulltime employed and 7 (8%) were working based on a temporary contract (not permanently employed). Twenty nine (35%) of the patients had a glucometer and of those 5 (17%) used it twice a day, 13 (45%) used it less and 11 (38%) used it more than twice a day. Of all patients, 63 (75%) also reported having hypertension and 25 (31%) high cholesterol. Forty four people reported complications and a total of 54 complications were recorded. Three patients had suffered a stroke, 39 had eye problems as a result of diabetes, 11 reported kidney problems, and one patient had suffered a heart attack.

SELF CARE ACTIVITIES

Table 1 presents the before-and-after results for the self-care activities. There was a significant improvement in adherence to a diabetic diet, physical activity, foot care and the perceived ability to teach others. There was no self-reported change in adherence to medication. Before the educational programme 25% (21/84) of the patients were smoking tobacco and this reduced to 18% afterwards (15/84) ($p=0.08$).

Self-care activity	Mean before (95% confidence interval)	Mean after (95% confidence interval)	p-value
Diet, general	4.8 (4.4-5.1)	5.9 (5.6-6.1)	<0.001
Diet, specific	4.6 (4.3-4.9)	5.1 (4.8-5.4)	0.01
Physical activity	3.0 (2.6-3.5)	4.5 (4.0-4.9)	<0.001
Foot care	4.5 (4.0-5.0)	5.8 (5.4-6.2)	<0.001
Medication adherence	6.3 (5.9-6.7)	6.5 (6.1-6.8)	0.33
Ability to teach others	5.4 (4.6-6.1)	8.8 (8.4-9.2)	<0.001

Table 1: Before-after results for self-care activities

QUALITATIVE DATA

STRENGTHS OF THE PROGRAMME

Strengths were defined as the perceived benefits of the programme for patients or health care workers (HCW's). Both staff and patients felt that there was a positive effect on coping and accepting the reality of diabetes, by enhancing social support and a sense of belonging with other diabetic patients:

"What I sense is that when you're a group like this, with similar problems, it doesn't feel like you're alone." FGDCo1

Having people with different experiences and levels of expertise in a group also enabled people to share solutions and learn from each other. The other patients thus provided a source of experiential knowledge:

"Especially in a group where you have newly diagnosed people come in and who can speak to the people that have been dealing with it for some time, get little pointers, try this or try that." GK

This collaborative learning dynamic not only existed between patients, but also between HCWs and patients.

"(...) you are tapping into the knowledge and experiences of your patients, it becomes a real two way conversation and they often taught me stuff and they taught the group stuff." ZS

Another benefit of being in a group was the fact that some patients were more comfortable to learn in a group; it helped them to open up and be stimulated in a different way from individual sessions. It reduced the fear that patients might have of the negative opinion of a "powerful expert". Patients felt much less free to share or ask questions if they feared being thought of as less or appearing stupid in the eyes of the health care worker. This fear was reduced in a group when compared to individual counseling. Patients had more of a

voice in a group as power was more shared in the collaborative and interactive group process as opposed to the more authoritarian nature of the consultation:

"I was stressed when I had to sit alone, now when I sit with other people, I feel better, different, I take air, and I feel lighter." FGDTh27

"When we're in a group we don't feel so stupid, and you don't feel so shy/embarrassed but if you were doing it individually you may not attend again because you're afraid of what the person might think of you." FGD Pa1

Having the right information was seen as an essential pre-requisite to healthy living. The value of knowledge as an essential aspect of the empowerment process early on in the illness was emphasized by a newly diagnosed diabetic:

"...but I feel I'm privileged because of the information I've received here...I can start doing things correctly right from the beginning because they told me how to do it. I can't turn round and say but I didn't know. I've got the know-how now. I would say the first thing to say to a new diabetic is to go to the "Take Five Class" and learn about your illness." FGD Ce1

The programme also gave enough opportunity for a more comprehensive and systematic approach providing ongoing information and understanding:

"One of the strong points of "Take Five" is that HCW's are able to present the overall picture of diabetes." KB

In the stages of change theory, "change" is seen as a cyclical, ongoing process consisting of different stages; pre-contemplation, contemplation, ready to change and relapse⁹. One of the skills practised in motivational interviewing is to elicit "change talk"²⁹. Change talk pertains to utterances from a patient about how or why they should change. The degree of change talk predicts actual change. The group programme appeared to elicit such change talk and enhance motivation to change. Patients who were more motivated from attending the School were also perceived to be more empowered and engaged when attending their appointments at the clinic:

"Everything that we learn goes with a responsibility, something that you have to do yourself. Get up and do it, you know the information but you have to get up and do something too." FGD Th27

"They are very much more easily convinced about reminders, about their lifestyle change." OA

The programme increased their confidence and self-efficacy to the point at which they made actual changes with regards to diet, adhering to treatment, physical activity, and other aspects of self care:

"I'd made the coffee and stood and stared at the sugar bowl and decided I'm going to have two spoons of sugar but in the end I didn't put the sugar in" FGD Ce1.

"I forgot, because sometimes I do not always remember things. That's why I made a specific time to take the tablets." FGD Co 30

"Before I go to my job, I have to do some exercise." FGD Th 31

"I learnt that you need to clip your nails properly, you must cut them straight. (...) I have to be extra careful to cut my toenails straight otherwise I can get ingrown toenails. I never knew that." FGD Pa01

Even long term patients felt they learned something:

"I think it's very enlightening, especially for people who are completely unaware because I've had this for over thirty years. So, I'm aware of a lot of it but even so, I picked up bits and pieces. I found it very good." FGD Ce1

Attendance at the group sessions was also therapeutic in terms of reduction of stress and anxiety. Issues in their daily lives such as grown children still living in the house, leaving the grandparents to, involuntarily, raise the grandchildren while the parents are out drinking or abusing drugs, causes significant stress to the grandparents. Deceased children were also mentioned spontaneously as causes of stress. Leading a balanced life is spoken about in the School and it is clear that this was appreciated as well as necessary. Discussion of stress may also have helped health care workers to appreciate the patient's context:

"It was a little different every time and it made me feel good. Honestly, and it is relaxing. When I leave here I feel very relaxed. That's my personal opinion". FGD Co1

"I stress terribly and that affects my blood sugar, but it's not too high because of the Take Five School right now". FGD Co30

Both patients and HCWs perceived the group programme to be an efficient use of time. It was felt that the pre-planned set up was much preferred to the possibility of waiting the whole day to see the dietician or doctor. They could still use their day in a productive manner afterwards:

"I can do ten people at one time" SZ

"They're committed to the time, they know it will be an hour long and then they can return home. It's not like when they come to the clinic and they have to sit around and wonder what time they're going home and they still want to do this and that." KB

One of the aims of the research was to get an insight into the perceived ability of patients to educate others in the wider community with regards to diabetes. There were several positive responses to this question during the focus group interviews.

"Because I'm involved in the community and the church I can in turn convey the information to the broader community in order to help them live a healthier lifestyle." FGD Ce1

Some of the participants were very enthusiastic and felt that their fellow diabetics should be made to attend the programme:

"(...) should actually make it compulsory for diabetics to attend". FGD Ce1

WEAKNESSES OF THE EDUCATIONAL PROGRAMME

Although the group process enabled some people to find a voice, for others there were concerns with confidentiality and trust and fears of disclosing more personal information:

"The only negative of a group is when you have someone who is an introvert and who doesn't feel comfortable sharing personal information in a group." FGD Ce1

"I find the difference between "Take Five" and sitting in the office is that people speak more freely about different complaints" KB

Participants were unanimous about the fact that patient information materials would have enhanced their learning:

"What would help me is if it could be on a hand-out so that we can see what we did last week." FGD Co30

The difficulties of coming to the sessions were mentioned by two healthcare workers, but not by the patients:

"They have to walk long distances...they have to walk for at least half an hour, while we get into a car and arrive within five minutes." KB

Another point of difficulty was the fact that in some clinics patients came late. This was mentioned by the health care worker, but not by the patients.

"I think they don't take into consideration the time it takes them to walk because they don't feel bound by time (watch-orientated) like someone who is employed." KB

Being able to communicate in a person's own language was seen as an issue as groups were multilingual. For health care providers this was seen as a possible weakness, but the patients did not comment on it.

"Language barrier could be a problem if you don't have a good interpreter" ZS

A call was heard to do more physical activity exercises during the sessions rather than just talking about them:

"A lot of people don't know about exercising, so maybe more exercises could be added to the course. We can come one day to the "Take Five Class" in our track suits and do some exercises. That will also help." FGD Pa01

Even though one entire class focused on the complications of diabetes, there was a strong call from participants to expand on this topic; the fear of complications was seen as a powerful motivator to adhere to treatment:

"More about the complication, to put it like that. See, it will teach us more to look after yourself, take your meds regularly how your pills will work." FGD Co1

Even to the participants it was obvious that the majority of their class mates were female. One of them had tried to convince her husband, who is also a diabetic, to join. His response was:

"You should have a class with men only as they feel that the women speak and speak all the time, so you should have a class just for men." FGD Pa01

The programme focused on a group of people intensely for some weeks, but there was no further follow up or support:

"I think it's important not to lose these people as they have had the training and are not yet proficient, they still need support and guidance." KB

To create an ongoing support structure, some HCW's proposed an ongoing support group.

"That can become a project for each clinic like to establish diabetic groups or hypertension groups, so that we can also carry on with the cohesiveness of the group". LZ

Even the participants would have liked to continue and were hoping for a second cycle of classes.

"If we can get more of these classes offered." FGD Co1

OPPORTUNITIES

Apart from intrinsic factors, the success of a structured group education programme is influenced by aspects that are outside the programme itself. These aspects pertain to the environment in which the programme is embedded and is dependent on. These external factors can be constructive or supportive "opportunities", or

negative “threats”. The following paragraph will discuss some of the opportunities that could support the Take Five School.

There are many diabetic patients who could benefit from the programme and patients themselves can assist with encouraging others to attend and disseminating the lessons learnt:

“In the first place, we need to go out and encourage more people to attend” FGDPa01

The district health services have an increasing interest in non-communicable diseases and health promotion that includes health education. This creates an opportunity for such a programme to be adopted more widely:

“At the moment there is an increased emphasis on preventative services.” GK

In the Eden district the impression is that the district health services and health workers are ready to implement the programme with minimal additional effort:

“Just a place that is all because they have got all the info, all clinics got trained people, all chronic clinics got home based carers and tracers, they have got counselors. So manpower is there, we just need to get the programme and say ‘okay’ and start with a group (...)” LZ

“Yes there won’t be any problem with the sisters; the sisters you will see are open to that. (...) they are young and they are eager to do stuff like that.” RI

Some people however also saw the opportunity for the programme to be outsourced to a NGO with the proviso that they had the correct information and expertise:

“But the info sessions I think to me is, if they have the right info to give, I think that is the ideal thing that a private NGO, people that want to be involved, can do. (...) But they must then obviously give the right info. They must have the right structure and mustn’t sort of go on their own further than their mandate.” SZ

There is also the opportunity to involve other cadres of health workers in the programme:

“Why can’t a pharmacist be involved because there’s a whole section which deals with medication?” KB

The programme can be the cornerstone of a more comprehensive and ongoing approach to diabetes education. It can be combined synergistically with individual counseling and can prepare patients to join ongoing support groups. Patients can also revisit the programme for reinforcement and revision in the future if it is run on a continuous basis:

“I think you need both because I think in the individual sessions sometimes you ask things that maybe you wouldn’t feel comfortable asking in a group, but in a group you’ll see other people that have the same problems and at least you won’t feel you’re the only one in the world you know?” GK

“So it would be very good if we could do the five weeks and review and re-see the patient either on a three monthly basis or a six monthly basis to reinforce what they have learnt and also to hear how they have experienced it. How they have applied it”. ZS.

“So if you present the course on a regular basis and they miss one, they can always attend the next.” KB

The programme can also act as the model for structured education of all people with chronic illnesses:

“(...) you could address all the chronic illnesses through those specific people who could rotate between the clinics. They could handle the chronic conditions health education. That person’s salary is a drop in the bucket of costs of amputations.” KB

One health care worker felt that the programme is of such importance that a full time person should be assigned to it.

"Because it is extra work. That's why it's important to release someone and to assign the responsibility to someone." KB

THREATS

External factors that influence the success of the Take Five School are multiple. Some are experienced as obstacles to its implementation and should be taken into consideration when implementing this programme. These "threats" can be divided into patient factors and health care factors. Health care factors are subdivided into staff, on the ground versus management, the interaction between patients and the health care system and the sustainability and continuity of the program.

An initial threat to the Take Five School was poor attendance and it was difficult to motivate patients. However as the programme gained momentum, patients came in larger numbers.

"In the beginning, as I say, the difficulty was to get the people to become involved, but as soon as the client starts seeing what we are doing and how it affects them, they come voluntarily." LZ

Patients are accustomed to only interacting with the clinic when they are sick and a service for people that are well, but with a chronic disease, is a new concept that will need marketing:

"A lot of people feel that the clinic is for illness" QD

This marketing needs to relay a message of "wellness" rather than "cure" and it needs an active engagement with the individual patient in order to assess their willingness to attend. Some presenters felt that it was the lack of marketing done by the clinic staff that caused a low uptake initially. The staff needs to be motivated to market the programme to patients:

" (...)because staff don't sell or market the product to them. (...) If you don't market it, people won't know about it and they won't use it. " ZS

Patients have many competing priorities and intentions to attend the programme. Commitment to attend may be diminished by difficulties with travel, other more urgent concerns or not feeling well enough:

"You see our patients; they are not responsible, on time, exact people. (...) I think that will be your biggest thing and next week it is raining or they feel slightly ill and then they don't come." SZ

Health care workers have a negative view of the effectiveness of health education and behaviour change counselling. Reluctance to promote the School may in part stem from uncertainty as to whether it can make any difference in the long term. Their experience of unsuccessful previous attempts to educate patients (often in an authoritarian and directing style) also reinforced a belief that patients are not willing to take responsibility for their health and are resistant to change. There is a deep sense of alienation in the relationship between staff and patients:

"I don't really know whether it had an impact on the people, they're so set in their ways with regard to behavioural change." SH

"Because they have this attitude that patients are undisciplined, ill-behaved, ungrateful, will not learn, will not change, uneducated, different types of cultural images and therefore any education we give will be lost". ZS

"But most of our patients don't have that drive and they don't care, they care about food and alcohol or whether it is something else and not their health. The finer details. They want to be healthy but they don't want to waste time in learning how to be healthy." SZ

"They couldn't care less, they come here when they've not taken their meds for two weeks, and they demand to get their pills, and now it's your fault if they have a stroke. That type of thing, they haven't taken responsibility. They just want to have and have. How do you get the message across?" SH

Higher level management acknowledges this attitude and the need to engage with staff in terms of their assumptions, values and beliefs about how patients change:

"Ja, I think there's a lot of that, so the education needs to be for the staff in a way as well. We need to see how we should deal with these patients instead of blaming them. I think there are a lot of patients who do default and don't take their medication right and they eat cake when they shouldn't eat cake. So it's difficult you know, it's like the same as TB patients if they don't drink their medication then after a while you do get a bit cross." GK

In order to obtain a true partnership in care, as is one of the objectives of education, an open and trusting relationship between patients and health care providers is important. As is clear from the above, the patients are not seen as an equal partner that are willing and able to carry their part. How is that relationship seen from the patients' perspective? It seems that patients are not always happy with their interaction with HCW's; fear, dishonesty, scaring-tactics, stressed doctors are all described and a reason why the current system is divided into a "them" and "us" type of thinking, instead of a collaborative approach:

"I see that a lot of people cheat themselves because they are scared of the doctor and the dietician. Or, they are going to make a scene." FGD Co1

"it is sort of a shock tactics when people say you're going to lose your leg if you don't listen. That is a shock tactic. A lot of people can't handle that and that can, I have found out that that can make some people very negative and then in the end will go sit in a corner. We don't only experience that in illnesses, we experience that also in our spiritual lives when we come to churches where people get pushed away because of preachers that are too strong, that come through the wrong way." FGD Co1

"Sometimes the doctor is angry or impatient then you don't feel free to ask questions, and at the same time you don't have the money to see a private doctor." FGDCo30

At present there is little structured education in place. It is not clear who should do it or whose mandate it is. Education is seen as something "extra" and doing it means an even higher workload, without extra staff to carry that task. This is in a context where staff already feel overstretched and are often struggling with burnout or depression:

"I think it is something that needs to be done but obviously when there is work pressure the first thing they cut back on is the "info" session and not the treatment and the seeing of the patient." SZ

"Due to burden, to workload, people tend to just get the patient out because especially if there is a hundred and fifty to two hundred patients that needs to be seen, then they don't have time" LZ

"A person could say why can't a health promoter put in one one hour session per week, it sounds so easy, why not? If you ask them they don't have the time. It's just an hour." KB

Others felt that it should be possible for staff to find that hour of time and that they should be strongly "requested" by management to partake.

"Unfortunately it is because most of the time people always said "they don't have time, they don't have time" but this is the thing of being implemented. Take the programme implement it and then you assign someone to the programme and as soon as that person becomes motivated, they get somebody in and somehow, somewhere people has got to do it and then they start motivating and then at the end of the day all our staff are geared up for Take Five." LZ

However, getting tasked with implementation of programmes and targets "from above" without intrinsic conviction that education works does not help either.

"they don't have to also add this duty to the multitude of other duties that is just regularly dumped upon them from above, ad nauseum." ZS

Some health care workers were actively involved with the School and indeed ran it as something "extra" on top of their ordinary workload. They felt it was rewarding, but did add another source of stress to their daily work:

"I had to just make the time but if I was honest, it pushed my tension up at the end of the day. I had to rush, it's not good for your health. Remember the day I lost my voice. You know, there's just only so much pressure one can take." KB

From the above it is clear that education is valued, but if there is no designated person, no one will do it as everybody is already busy. Who would be the right person to do it and why is that person not doing it? Most commonly, and logically, the health promoters are mentioned.

"The ideal people to present the course would be the health promoters, but they're too busy. (...)One cannot load them with any more work. I would say the health promoters, they have the name. (...) And it's what they are actually supposed to be doing." KB

Health promoters themselves feel it is part of their job.

"If education is being given, than it has to be the promoters that do that." QD

However, it seems their tasks are very diverse, and it seems to be general knowledge that they are on the brink of being overburdened:

"Well we have health educators but they definitely have jobs already so they are very invested in breastfeeding education and that sort of thing. If they were released from many of their other non-health educating duties, like weighing the baby (...) they could also possibly run parts of these programmes, or all of these programmes." ZS

Babies, HIV patients and administration seem to take the brunt of the health promoter's current time:

"I've been alone today and have seen about sixty people, the HIV patients who are on treatment and the babies, then there are new babies who come in for whom I have to make files. The workload is just too much. Okay, we all came to work and I don't want to complain, I enjoy my work but it gets a bit too much at times." GB

Management has recognised the load on the health promoters and a transitional process is being carried out. However, the responsibility and execution of a structured education model is not an explicit part of the re-organisation of tasks and responsibilities.

"So the idea is that the counsellors in your clinic should be more generic, and they should be counselling and doing health promotion on all areas, not just HIV and TB. (...) So they (counsellors-red) should be taking over that role (of health promotion-red), (...)" GK

Support from management regarding education and freeing up people to dedicate themselves to education is felt to be lacking:

"Because upper management does not believe that education is as important as the other four pillars of health. " ZS

"Because it was never specifically given to anyone and making it their job." KB

Talking to management, it is clear that they are also struggling with the question as to how to fit education into the system. It seems that a "general approach" is still prevalent; all healthcare providers should do a part and no overall responsible person is needed. There is no mention of a structure to the education.

"I think it rests on the health care in total. I don't think it's any particular one. I think we're all part of the team." OA

Asking the questions as to how to fit education into the system brings many answers, with different motivations. This is also an indication of how different the views are and that there are still some gaps to be bridged before any programme could be implemented. Pharmacists, doctors, home based carers are all mentioned as possible executors, coordinators or presenters. This disparity in opinions is a threat to the programme. One solution to the problem of overburdened staff is to outsource the education to local NGOs. However some feel that the home based carers employed by NGOs are not suitable:

"If that doesn't work (freeing up health promoters-red) then external people, almost like a home-based carer contracted to the department to do it." ZS

"I don't think they have enough knowledge and there isn't really the interest." SH

As can be understood from the above, there is no clear cut solution to appointing a responsible person. One of the negative sides of not having a designated, responsible person for education is that the education and the maintenance of the knowledge level of the health care providers is not assigned to anybody. Many health care providers emphasize the relevance of getting the right message across and imply that messages may be confusing or even misleading:

"But they must then obviously give the right info. They must have the right structure and mustn't sort of go on their own further than their mandate." SZ

Several other issues were brought up with regards to the difficulty of implementing the School, such as going to scale with the sheer numbers of patients that flood the primary care system every day:

"I still think the ARV model is not a bad model and it should actually be applied to chronic disease and TB because if we could have a model like that, it's obviously just the numbers that probably limit it." GK

Some health care providers mentioned that investing in education will pay off in the long term, but there are so many other acute issues to deal with in the short term that there is no staffing for education and nothing changes. It is a viscous cycle in which patients present with acute complications and uncontrolled chronic conditions, partly as a result of being poorly educated and empowered, and these urgent problems prevent health workers from getting to the important task of education:

“So we keep on saying that we must do more preventative medicine but there are too much patients sitting in the waiting room with snotty noses and high blood pressure, so what comes first the chicken or the egg you know? You’ve got to start doing prevention to try and decrease these numbers but you can’t start doing that until you’ve decreased the numbers. So it’s a bit of a catch twenty two.” GK

In the scenario of everybody is seen as responsible for education as part of the team, we are ignoring the fact that education is not everybody’s forte. This leads to undervaluing of being a good educator and making people educate who are not motivated for it. It is comparable to any other clinical skill, for example surgical skills. And it is felt that educational skills are not recognised:

“We also know that there are personalities that are educators and personalities that are not. And we often expect a non-passionate person to try and be an educator.” ZS

Money itself is not that often mentioned as an obstacle, but many of the above mentioned problems could be solved with money:

“(…) you could address all the chronic illnesses through those specific people who could rotate between the clinics. They could handle the chronic conditions health education. That person’s salary is a drop in the bucket of costs of amputations.” KB

Space to do the classes in as well as for people just to come together for peer group events is mentioned as a definite obstacle:

“I would say the clinics don’t have the infrastructure, it would be better to have a separate hall.” KB

In Centrum clinic, where the waiting room was used in the morning, feedback was not positive:

“The other thing is that you’re sitting there and the nurses call the peoples’ names and it distracts you. (...) If we were in a specific room then we can give more attention to what’s going on and integrate the information than when we’re sitting amongst everyone else speaking at the same time, telephones ring and that type of thing, it’s very distracting.” FGD Ce1

Because the School has been running on and off for the last couple of years, there are some critical remarks about the sustainability of such a programme.

“So in the programme they should probably have built in more train the trainer kind of things and had more people trained to carry on with it. But then you need also the focus of the health services to buy into it and I think from management’s side there was a while that there was a negativity around it and it wasn’t promoted, it was just left.” GK

“It shouldn’t just be one person driving it. (...) Because you see because that’s when you fail, when a person leaves it collapses.” RI

DISCUSSION

KEY FINDINGS

This research showed that the “Take Five School” made a significant difference in the short term to self-care activities such as diet, physical activity, foot care, and the perceived ability to educate others. No significant difference was seen for smoking cessation or adherence to medication, although both improved after the programme. Self-reported adherence to medication was already high before the intervention and left little room for improvement. The qualitative findings are summarized in Table 2. Internal factors in this model are

seen as factors under the influence of the organiser of the Take Five School. External factors are seen as factors external to the organiser in the health system or local community context.

Table 2: Summary of the key qualitative findings

	Internal	External
Positive	<u>Strengths</u> <ul style="list-style-type: none"> • Increased social support and sense of belonging • Knowledge exchange between patients as well as from health worker • Improved knowledge of diabetes • Comprehensive and systematic education • Increased self-efficacy, motivation and readiness to change • Increased behavioural change • Reduction of stress • Time efficient for both staff and patients • Increased engagement with behaviour change counseling in clinic • Increased confidence about educating others • Educated, motivated staff (few, but present) • Involvement of other healthcare providers like pharmacists • Combination of group and individual counseling • Ongoing cyclical Schools giving opportunity for reinforcement of learning • Opportunity for ongoing support groups after the programme 	<u>Opportunities:</u> <ul style="list-style-type: none"> • Using patients as partners to support and enroll other patients • Increased awareness and value attached to education and prevention at provincial level • Use of external partners (home based carers, local NGO's) • Application of model to other chronic illnesses.

Negative	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> • Difficult to share intimate issues in a group • No patient education materials • Requires multiple visits to the clinic • Patient punctuality • Language barriers • Lack of physical activities within the class • Still unfulfilled desires to learn more • Too many women • Too short and not ongoing • Lack of ongoing support groups • It takes a health care worker out of the (curative) system 	<p><u>Threats</u></p> <ul style="list-style-type: none"> • Lack of interest from patients when they feel well • Lack of marketing by staff who are not convinced of effectiveness • No suitable space for group education • Lack of time and high workload, seen as extra work • Lack of staff buy in due to skepticism about behavioral change and patient's ability to change • Patients feel a distrust/lack of interest from healthcare workers • Collusion of anonymity in that if everyone is responsible then no-one takes responsibility • Health promoters are occupied with other activities and educational skills are not valued • Perceived lack of practical support from management and intention to implement structured education • Large numbers of patients makes going to scale difficult • Domination of acute illness and urgent complications over the importance of education for chronic disease • Lack of money to build extra capacity for education • Lack of sustainability-when carried by few individuals
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STRENGTHS AND LIMITATIONS

The duration of the effects of the programme are not known as the questionnaires were administered immediately after the last class. The effect may not persist and in the pragmatic trial in Cape Town no change in self-care activity was seen at 12-months.²⁵ Moreover, there is no control group to compare this data with to ensure that the effect observed was due to the School and not to other confounding factors. The level of education was not included in the study and could impact on the effect size seen. However, as this was a matched before-after study, it does not impact on the ability to detect a significant change. The programme might however have a different effect in people with a different level of education.

The interviews were conducted by the researcher, a doctor in the Eden district. She never worked regularly at the primary care clinics, but did visit to give TB care support to nursing staff. She did not present any of the classes, but was always in attendance. As such, she might have been seen as a part of the programme and this might have influenced patients in the focus groups, particularly in terms of their openness to share negative aspects of the programme. However, patients also understood that in order for the programme to be improved, they would have to share their suggestions and what they thought were the negative aspects. Being seen as knowledgeable of the system that patients go through, as well as being a doctor, might have shaped the information received, but I think it made patients open up easier because of familiarity over the weeks.

Secondly, as with all qualitative research, there is a risk of bringing assumptions, beliefs and even prejudices to the interviews and analysis. Triangulation was used to increase the validity of the research; points of view from

both patients and health care providers were sought. Health care workers from different cadres were interviewed, as well as from different levels within the organization. Respondent validation was applied by checking certain themes that generated after several interviews with other respondents. If theory was generated within an interview, this could be clarified during the interview.

COMPARISON TO THE LITERATURE

The small effect size of structured group education in the DESMOND study may have been due to the pre-existing high quality of care and degree of glycaemic control. Education therefore, would not be able to make a difference on endpoints that were already controlled with usual care and medical treatment. In comparison, in the Western Cape only 47% of audited diabetics have had an HbA1C done at all and only 17.5% had an HbA1C under 7.0%.³⁰ We can reversely argue that there is great gain to be had through *any* intervention in South Africa that targets the improvement of care of diabetic patients. This corresponds with the NICE recommendation that even a small effect would be cost effective as the intervention is not deemed a costly one.

Health care worker “fatigue” to educate and skepticism about patient’s ability to change comes to the foreground over and over and poses a “threat” to the continuation of the Take Five School. In the larger picture attention must be given to staffing levels, workload, burnout and organizational culture to enable staff to take on more with a caring and respectful attitude.^{31, 32} It is noteworthy that in an appreciative inquiry into the improvement of the annual review of diabetic patients in Cape Town some staff listed “caring for the carers” as the number one priority to improve the quality of care.³³

Traditionally non-communicable chronic diseases have not been a priority for targeted funding and increased capacity. Over the last few years the HIV/AIDS epidemic and emergency care have dominated in terms of increased staff and infrastructure. Success with comprehensive patient education and empowerment will require attention to infrastructure and allocation of specific and sufficient staff.

Patient involvement is essential to create a patient orientated, culturally attractive, programme.³⁴ Long term follow up and support needs to be in place, either group based or through individual counseling with a designated health care worker, who speaks the same “language and spirit” of the Take Five School.

In addition the collaborative, empathic and respectful stance of motivational interviewing may also help staff to let go of the “righting reflex” and negative reactions to patients who seemingly refuse to follow their advice and instructions. This might help to prevent “educational burnout” in staff and a renewed interest to partner with patients and support them in their self care.^{9, 29} Group based education can lead to greater clinician satisfaction¹⁸ but does need a change in attitude.

Providing evidence that structured education is necessary and the most cost-effective way to increase self-management for diabetics in the South African public primary health care system, will lead to greater motivation from the side of health care workers. As Professor Mayosi suggested⁴, operational research is needed to test the effectiveness of structured group education programmes in South Africa. Our patients need it and should have access to a supportive ongoing empowerment programme that helps them to look after themselves with the help of the health care system. And this very health care system, that involves thousands of providers, also needs research that is valid in their setting and takes into account the changing emphasis from curative to preventative and chronic care.

IMPLICATIONS AND RECOMMENDATIONS

This study provides limited evidence for the effectiveness of the Take Five School programme. The programme should be sustained, strengthened and implemented elsewhere with further more rigorous evaluation over a longer period.

The “everybody is responsible” attitude has led to nobody taking action or responsibility. The lack of a designated driving person, supported by a sustainable chronic care team, is of the essence in the implementation and continuation of a structured education programme.

The study also makes a number of suggestions that can improve the programme itself:

- Provision of complementary patient education material
- Longer term, supportive, follow up possibly in support groups after the School
- Combination of provision of generic information by means of the School, combined with individual sessions to discuss personal needs and difficulties
- Designation of and support for specific health workers responsible for delivering education
- Encompass physical activities in the School

In addition the study makes a number of suggestions to improve the environment for a successful programme:

- Availability of space for group education
- Education of HCW’s about effectiveness of behavioral change to increase their motivation and support
- Organising the School to improve geographical access

Further research should evaluate the effectiveness of the School in the longer term and include clinical outcomes in a larger experimental study.

CONCLUSION:

This research has shown that structured group education of Type 2 diabetics in a South African public sector primary care context can lead to significant short term improvements in self-care activities. Patients also felt empowered to share their learning with others. Qualitative findings reveal a number of strengths and weaknesses of the current programme that can be addressed as well as threats and opportunities for group education in the health system. A number of specific recommendations are made to improve both the programme and its enabling environment. The Take Five School programme should be sustained, strengthened and evaluated further.

COMPETING INTERESTS

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LITERATURE

1. International Diabetes Federation. *IDF Diabetes Atlas, 5th edn*. Brussels, Belgium: International Diabetes Federation, 2011. On: <http://www.idf.org/diabetesatlas>. Accessed 10 October 2012.
2. Mash B, Fairall L, Adejayan O, Ikpefan O, Kumari J, Mathee S, et al. A Morbidity Survey of South African Primary Care. (2012) PLoS ONE 7(3): e32358. doi:10.1371/journal.pone.0032358

3. Bradshaw D, Norman R, Pieterse D, Levit NS, et al. Estimating the burden of disease attributable to diabetes in South Africa in 2000. *S Afr Med J* 2007; 97: 700-706.
4. Mayosi BM, Flisher AJ, Lalloo UG, et al. The burden of non-communicable diseases in South Africa. *Lancet*. 2009;374(9693):934-947
5. Amod A, Ascott-Evans BH, Berg GI, Blom DJ, Brown SL, Carrihill MM, et al. The 2012 SEMDSA Guideline for the Management of Type 2 Diabetes. *JEMDSA* 2012;17(2)(Supplement 1): S1-S95.
6. International Diabetes Federation. Clinical Guidelines Taskforce. Global Guideline for Type 2 Diabetes. On: www.idf.org. Accessed: 7 October 2012.
7. Deakin TA, McShane CE, Cade JE, Williams R. Group based training for self-management strategies in people with type 2 diabetes mellitus. *Cochrane Database Syst Rev* 2005;(2):CD003417.
8. World Health Organisation. Therapeutic Patient Education. On: www.euro.who.int/__data/assets/pdf_file/0007/145294/E63674.pdf. Accessed 25 October 2012.
9. Mash RM, Allan S. Managing chronic conditions in a South African primary care context: exploring the applicability of Brief Motivational Interviewing. *SA Fam Pract* 2004;46(9).
10. Norris SL, Engelgau MM, Narayan KMV. Effectiveness of self management training in type 2 diabetes. A systematic review of randomized controlled trials. *Diabetes Care* 2001; 24: 561-587.
11. National Institute for Clinical Excellence. Guidance on the use of patient-education models for diabetes. 2003. <http://www.nice.org.uk/nicemedia/pdf/60Patienteducationmodelsfullguidance.pdf> (accessed 6 March 2010)
12. Funnell MM, Brown TL, Childs BP, Haas LB, Hoseney GM, Jensen B: National standards for diabetes self-management education. *Diabetes Care* 2010, 33:S89–S96.
13. International Diabetes Federation. Position Statement: Self-Management Education. On: <http://www.idf.org/education/position-statements/self-management-education>. Accessed 7 October 2012.
14. Deiss, J. Draft Political Declaration of the High-level Meeting on the prevention and control of non-communicable diseases. On: http://www.un.org/en/ga/ncdmeeting2011/pdf/NCD_draft_political_declaration.pdf. Accessed 7 October 2012.
15. Rickheim PL, Weaver TW, Flader JL, Kendall DM. Assessment of Group versus Individual Diabetes Education. *Diabetes Care* 2002; 25: 259-274.
16. Norris SL, Lau J, Smith SJ, Schmid CH, Engelgau MM. Self Management Education for Adults with Type 2 Diabetes. A meta-analysis of the effect on glycemic control. *Diabetes Care* 2002, 25: 1159–1171.
17. Botes AS. The ability of health promoters to deliver group diabetes education in South African primary care. MMed Thesis. University of Stellenbosch, 2011.
18. Trento M, Gamba S, Gentile L, Grassi G, Mirelli V, Morone G et al. Rethink Organization to iMprove Education and Outcomes (ROMEO). A multicenter randomized trial of lifestyle intervention by group care to manage type 2 diabetes. *Diabetes Care* 2010; 33:745–747.
19. Khunti K, Gray LJ, Skinner T, Carey ME, Realf K, Dallosso H et al. Effectiveness of a diabetes education and self management programme (DESMOND) for people with newly diagnosed type 2 diabetes mellitus: three

year follow-up of a cluster randomised controlled trial in primary care. *BMJ* 2012;344:e2333 doi: 10.1136/bmj.e2333 (Published 25 April 2012)

20. Steinbekk A, Rygg LO, Lisulo M, Rise MB, Fretheim A. Group based diabetes self-management education compared to routine treatment for people with type 2 diabetes mellitus. A systematic review with meta-analysis. *BMC Health Services Research* 2012, 12:21. On: <http://www.biomedcentral.com/1472-6963/12/213>. Accessed 7 October 2012.

21. Davies MJ, Heller S, Skinner SC, et al. Effectiveness of the diabetes education and self management for ongoing and newly diagnosed (DESMOND) programme for people with newly diagnosed type 2 diabetes: cluster randomised trial. *BMJ* 2008 Mar 1; 336 (7642): 491-495.

22. Urbanski P, Wolf A, Herman WH. Cost-Effectiveness of Diabetes Education. *J Am Diet Assoc.* 2008;108:S6-S11.

23. Jacobs-van der Bruggen MAM, van Baal PH, Hoogenveen RT, Feenstra TL, Briggs AH, Lawson K. Cost-Effectiveness of Lifestyle Modification in Diabetic Patients . *Diabetes Care* 2009; 32:1453–1458.

24. International Diabetes Federation. BRIDGES Report 2011. On: www.idf.org. Accessed: 15 October 2012

25. Toobert DJ, Hampson SE, Glasgow RE. The summary of diabetes self-care activities measure. *Diabetes Care* 2000 Jul;23(7):943-950

26. Statistics South Africa. On: <http://interactive.statssa.gov.za/superweb/loadDatabase.do?db=Descriptive11>. Accessed 9 December 2012.

27. Mays N, Pope C. Qualitative research in health care: assessing quality in qualitative research. *BMJ* 2000; 320; 50-52.

28. Pope C, Ziebland S, Mays N. Analysing qualitative data. *BMJ* 2000 Jan 8; 320: 114-116.

29. Rollnick S, Butler CC, Kinnersley P, Gregory J, Mash B. Motivational Interviewing. *BMJ* 2010;340:c1900 doi: 10.1136/bmj.c1900

30. de Vries E, de Sa A, Murie K, Namane S, Govender S, Schlemmer A et all. Auditing Chronic Disease Care: Does it make a difference? On: http://saafp.org/conferences/index.php/Congress/index/pages/view/speaker_presentations. Accessed 15 October 2012.

31. Rossouw L. The prevalence of burnout and depression among medical doctors working in the Cape Town metropole community health care clinics and district hospitals of the Provincial Government of the Western Cape: A Cross-Sectional Study. MMed Thesis. University of Stellenbosch (2011).

32. Mash R, Govender R, Isaacs A, de Sá A, Schlemme A. An assessment of organisational values, culture and performance in Cape Town's primary care services. In Press. *SA Fam Pract*.

33. Mash B, Levitt N, Van Vuuren U, Martell R. Improving the diabetic annual review in primary care: An appreciative inquiry in the Cape Town District Health Services. *SA Fam Pract* 2008;50(5):50-50d. Available from: <http://www.safpj.co.za>. Accessed: 10 October 2012

34. Diabetes UK. Diabetes UK. Recommendations for the provision of services in primary care for people with diabetes. Published by Diabetes UK. 2005. On: www.diabetes.org.uk/Documents/Professionals/primary_rec.pdf. Accessed 25 October 2012

APPENDIX 1: DIABETES SELF CARE QUESTIONNAIRE

The questions below ask you about your diabetes self-care activities during the past 7 days. If you were sick during the past 7 days, please think back to the last 7 days that you were not sick.

Diet

1. How many of the last SEVEN DAYS have you followed a healthy eating plan?

0 1 2 3 4 5 6 7

2. On average, over the past month, how many DAYS PER WEEK have you followed a healthy eating plan?

0 1 2 3 4 5 6 7

3. On how many of the last SEVEN DAYS did you eat five or more servings of fruits / vegetables?

0 1 2 3 4 5 6 7

4. On how many of the last SEVEN DAYS did you eat high fat foods such as red meat or full-fat dairy products?

0 1 2 3 4 5 6 7

Exercise

5. On how many of the last SEVEN DAYS did you participate in at least 30 minutes of physical activity? (Total minutes of continuous activity, including walking)

0 1 2 3 4 5 6 7

6. On how many of the last SEVEN DAYS did you participate in a specific exercise session (such as swimming, walking, biking) other than what you do around the house or as part of your work?

0 1 2 3 4 5 6 7

Foot care

7. On how many of the last SEVEN DAYS did you check your feet?

0 1 2 3 4 5 6 7

8. On how many of the last SEVEN DAYS did you inspect the inside of your shoes?

0 1 2 3 4 5 6 7

Medication

9. On how many of the last SEVEN DAYS did you take any of your diabetes medication (pills or insulin injections)?

0 1 2 3 4 5 6 7

10. On how many of the last SEVEN DAYS did you take your recommended number of diabetes pills or insulin injections?

0 1 2 3 4 5 6 7

Smoking

11. Have you smoked a cigarette – even one puff – during the past SEVEN DAYS? No / Yes

12. If yes, how many cigarettes did you smoke on an average day?

Number of cigarettes:

Self-efficacy

13. The following questions ask how confident you feel that you could explain diabetes to another person or group of people.

How confident are you that you could explain diabetes to a family member?	Not at all confident 1 2 3 4 5 6 7 8 9 10 Totally confident
How confident are you that you could explain about diabetes to another person with diabetes?	Not at all confident 1 2 3 4 5 6 7 8 9 10 Totally confident
How confident are you that you could explain about diabetes to a group of people in the community or clinic?	Not at all confident 1 2 3 4 5 6 7 8 9 10 Totally confident

General questions:

Please circle the correct answer

14.	Are you a man or a woman?	man		Woman	
15.	How old are you?				
16.	Do you work	Yes	No	Occasional jobs	Receiving grant
17.	How long ago were you told you had diabetes?	Less than 6 months ago	Between 6 months and 3 years ago	3 to 10 years ago	More than 10 years ago
18.	What medication do you use for your diabetes?	Pills only		Pills and insulin injections	
19.	Do you have a glucometer	Yes		No	
20.	If you have a glucometer, how often did you use it in the last week	More than twice a day		Less than twice a day	
21.	What other illnesses do you have?	High blood pressure	High Cholesterol	Neither	
22.	Have you ever had	A stroke	A heart attack	An amputation because of diabetes	An eye problem because of diabetes